

2.0 SYSTEM SUMMARY

2.1 Identification

The Joint Engineer Planning and Execution System (JEPES) Users Manual Update addresses Version 4.04 functionality, and follows requirements of Software Users Manual (SUM) MIL-STD-498, DI-IPSC-81443. Portions of the DID that have been tailored out as not applicable are: “Contingencies and Alternate States,” “Modes of Operation,” and “Related Processing.”

2.2 System Overview

This users manual discusses the operation of JEPES, a subsystem within GCCS, the follow-on system to the Worldwide Military Command and Control System (WWMCCS). JEPES is a menu-driven system that assists in evaluating and preparing the Civil Engineering Support Plan (CESP) annex to OPLANs. JEPES begins with a new Operation Plan (OPLAN) with Type Unit Characteristics File (TUCHA) and Time-Phased Force and Deployment Data (TPFDD) data from the Joint Operation Planning and Execution System (JOPES) Core database, and Combined Asset data from Real Property Inventory (RPI), which is originally identified by the Services (Army, Navy, Air Force). Data are analyzed and edited as required. Once integrity of the database has been assured, JEPES will identify facilities required to support deploying forces, apply existing assets to fulfill these requirements, and then assign engineering resources to construct remaining unsatisfied requirements. Appropriate reports, queries, and graphics can then be produced. In addition, support files for Logistics Sustainment Analysis and Feasibility Estimator (LOGSAFE) and Logistics Sustainability Analysis (LSA) may be produced. Figure 2-1, JEPES Operation, indicates the JEPES operation in this division.

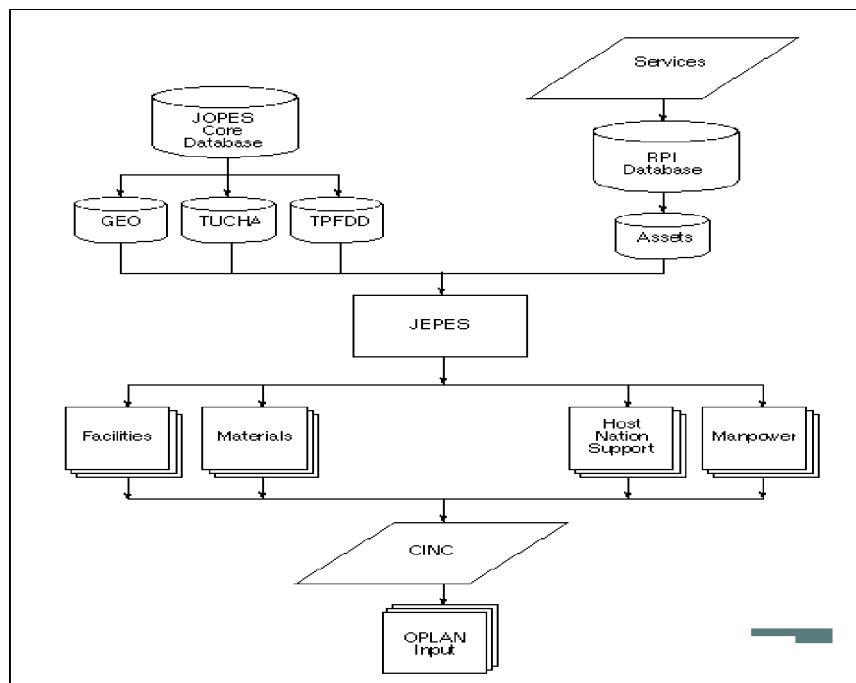


Figure 2-1. JEPES Operation

2.3 Software Inventory

JEPES requires no additional software that is not part of the GCCS Common Operating Environment (COE). The following COE components are used by the application:

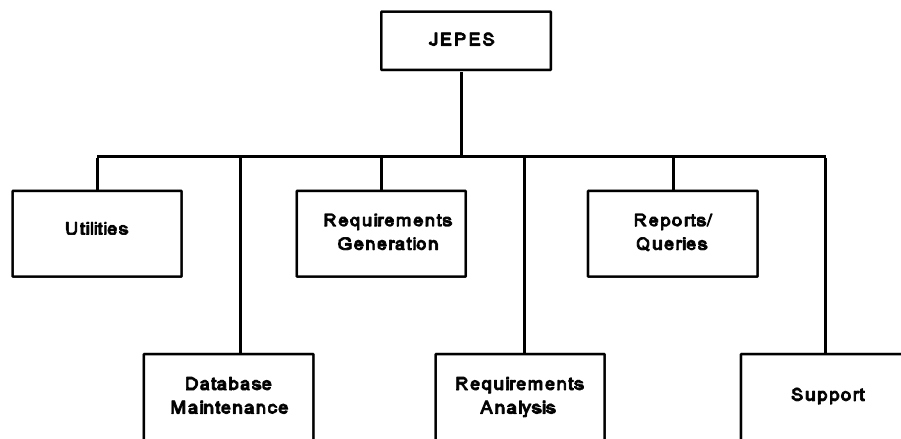
MOTIF Version 1.2.2,
Solaris 2.3 or 2.4,
Applixware 3.2,
ORACLE Version 7.x, and
ORACLE Forms 4.0.

2.4 Software Environment

JEPES, as currently configured, operates in a client-server environment. The server is a SPARC1000 and the client a SPARC20 or higher. At some sites, personal computers (PCS) using X-Server software may be used to remotely log into the client server and execute JEPES. The operating system is Solaris 2.3 or higher. The ORACLE Relational Database Management System (RDBMS) 7.0 or higher resides on the server and the JEPES application on the client. On the server, each JEPES user's data is stored in ORACLE tables which reside in the JEPES_DATA tablespace. JEPES_DATA is a 300 MB tablespace that supports the storage of data for up to five JEPES users, with each user needing approximately 60 MB. The JEPES application on the client requires 28 MB of disk storage. Each JEPES user requires 30 MB on the client, to support the storage of up to three OPLAN export files. SQL*Net is used to communicate between the ORACLE database (on server) and the JEPES application (on client). JEPES uses ORACLE Forms 4.0 for the graphical user interface (GUI), Applixware for graphics output, and Ada software for the model algorithms compiled using the Alslys Ada compiler. The combination of commercial off-the-shelf (COTS) and custom software provides a system that is easy to use and requires very little knowledge of data processing.

2.5 Software Organization and Overview of Operation

Figure 2.5-1, shows the JEPES software organization.



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Figure 2.5-1. JEPES System Organization

The JEPES functions are described in detail in Paragraph 2.8.2, Processing.

2.6 General Description of Inputs, Processing, and Outputs

2.6.1 Inputs

The ORACLE tables acquire data from keyboard entry, GCCS ORACLE tables or export files. Outputs of Ada programs are also input to JEPES tables. Input sources are discussed below. For more information on inputs, refer to Paragraph 3.2, Input Requirements.

2.6.1.1 General

The JEPES' main input source for JEPES is data downloaded from the JOPES Core database and from RPI. GCCS and RPI data are extracted from ORACLE tables and inserted into JEPES ORACLE tables. See Paragraph 3.2.2, Origin, for more information on the JOPES Core database and the RPI database. JEPES also uses data acquired through keyboard entries (See Paragraph 5.3.2, Database Maintenance, and Paragraph 5.3.5, Requirements Analysis).

2.6.1.2 Input Source GCCS Table

The following GCCS tables are used as input into JEPES tables:

- a. TUCHA:
 - 1. Unit_Type table, and
 - 2. Unit_Type_Cargo_4th table.
- b. TPFDD:
 - 1. Oplan_Force_Rqmt table, and
 - 2. Oplan_Force_Rqmt_Loc table.
- c. Other:
 - Geographic_Location table.

2.6.1.3 Input Source RPI Table

The following RPI table is used as input into JEPES tables:

RPI:
Combined_Asset table.

2.6.1.4 Input Keyboard Information

A user can add, delete, and update JEPES OPLAN independent and dependent database tables through the Database Maintenance function of JEPES. Refer to Paragraph 5.3.2, Database Maintenance, for more information. Before running the Requirements Generation function, a user can define the requirement aggregation periods. Various parameters for analysis and report generation may also be entered, e.g.,

engineer force utilization, sources from which to draw assets, engineer phase-in efficiency, attrition, and skill substitution.

2.6.2 Processing

JEPES is a menu-driven system and is composed of six functions. Some functions execute an Ada program. Some functions provide needed information in terms of input/output to feed into another function. Refer to Section 5.0, User Terminal Processing Procedures, for more information on the JEPES functions.

2.6.2.1 Utilities

This function provides the user the ability to export and import plan-independent tables, plan-dependent tables, or the entire JEPES database, extract TPFDD and TUCHA data, and import/extract RPI data. This function also allows the user to import an export file created from the JEPES PC Version 3.0. The user can also import a different OPLAN into JEPES; i.e., plan-dependent tables only, import updated plan-independent tables only or restore an entire JEPES database for a particular OPLAN. It is recommended that a user use the export function to backup the JEPES database. The user can extract TPFDD and TUCHA data from the JOPEs Core database into the JEPES database for a particular OPLAN. This function also provides the capability to import the Combined Asset data from RPI, extract the Combined Asset data into the Asset and War Damage Factor tables and browse the Combined Asset data.

2.6.2.2 Database Maintenance

This function allows planners to manually edit, query, add, or delete data in the database. When updates are made, other tables are updated to maintain database consistency. This function gives planners the capability to analyze data and determine any discrepancies for correction before generating requirements. Reports are generated if discrepancies are detected.

2.6.2.3 Requirements Generation

This function generates a general set of engineering requirements satisfaction data, based on a specific OPLAN and engineering planner input. These requirements are subdivided into eight categories: unit allocated; planner facility; population; base requirements; medical; ammunition; operations; and maintenance petroleum, oil, and lubricants (POL). Only the first four categories (unit allocated, planner facility, population, and base requirements) have been implemented. Unit-allocated requirements encompass the CESP unit-allocated and equipment requirements. Planner facility requirements encompass support derived from the civil engineering planner input requirements. Population requirements encompass the CESP people and total population (TOTPOP) requirements. Base requirements encompass CESP base-allocated requirements. Reports can be produced for all projects or for those limited to a specific base. Graphs and spreadsheets can be generated to display population and various time-phased requirements.

2.6.2.4 Requirements Analysis

This function applies available assets and engineering capability at a base complex to the engineering requirements generated. The Requirements Generation module must complete generation before executing the Requirements Analysis module. The Requirements Analysis module is divided into two functions: Apply Assets function and Apply Engineering Resources function.

The Apply Assets function matches the available facility assets with the generated facility requirements. The process can take into consideration the availability of one or more U.S., host nation, and leased assets. If the user specifies, the war damage to facility assets are assessed and war damage repair requirements are generated. Printed reports can be generated to display all asset-satisfied and asset-unsatisfied requirements.

The Apply Engineering Resources function will calculate and assign available engineering capabilities to the remaining unsatisfied requirements. These capabilities can include host nation and contractor engineering resources as well as U.S. resources. If user specifies, unsatisfied requirements will be assigned to the host nation and/or contractor first; then, any remaining requirements will be assigned to the U.S. War damage to completed construction and engineer skill substitution can also be considered. Other user inputs considered for determining engineering capabilities are engineer phase-in efficiency, climatic factors, engineer attrition, and whether engineers are used at the base complex level only or within an entire region. Printed reports can be generated to list construction requirements and any remaining unsatisfied requirements.

2.6.2.5 Reports/Queries

This function generates standard and user reports and invokes SQL*Plus. The Standard Reports function will generate the reports for Requirements Generation and Requirements Analysis functions. The Requirements Generation reports and graphs can be generated with the option of modifying the aggregation period (first day/last day). The Requirements Analysis function can generate reports for Apply Assets and Apply Engineering Resources with an option to define region and/or time constraints. The User Reports function will display a list of user-defined report files allowing the user to generate a particular report. The Ad Hoc Queries function will invoke SQL*Plus, enabling a knowledgeable user to construct ad hoc queries and call predefined ad hoc queries.

2.6.2.6 Support

This function generates non-unit cargo information for LOGSAFE and generates LSA information. The Non-Unit Cargo function allows the user to generate Class 4A non-unit cargo information needed to support the civil engineering activities in the Area of Operation (AOR) and then stores the generated requirements in a text file to be sent to LOGSAFE. The LSA function provides assistance to the planner in determining the supportability of a Course of Action (COA)/OPLAN based on the availability of six infrastructure subelements. The subelements are airfields, POL storage/distribution, seaports, non-POL storage/distribution, troop support, and utilities. Spreadsheets and graphics can be generated to display this information. Requirements Generation and Requirements Analysis must have completed operation before running the Non-Unit Cargo function and the LSA function.

2.6.3 Outputs

JEPES produces hardcopy reports and/or screen displays. Applixware is invoked to display or print graphics. These outputs are discussed below according to functionality. Refer to Paragraph 3.3, Output Requirements, for more information on the JEPES outputs.

2.6.3.1 TPFDD Extract Report

The TPFDD Extract function under the Utilities function produces an Extract TPFDD Status Report and a report listing the rejected TPFDDs for a particular OPLAN.

2.6.3.2 Database Analysis

This function provides printed reports displaying discrepancies between database tables. See Paragraph 5.3.2.2, Database Analysis, for more information.

2.6.3.3 Requirements Generation

This function provides printed reports displaying the facility requirements for unit-allocated, planner facility, population, and base forces. A report can be generated for the total requirement or a selected base complex. This function also provides displayed/printed graphics showing base population data, time-phased population growth over an entire OPLAN, time-phased requirements data for up to four specific facility category codes for an OPLAN, and time-phased requirements data for up to four specific facility category codes at a specific base complex.

2.6.3.4 Requirements Analysis

This function provides printed reports displaying all asset-satisfied and asset-unsatisfied requirements. The same reports can be generated for a specified region and/or time constraint. This function also provides reports for all construction requirements, construction requirements for a specified region and/or time constraint, and construction requirements within the analysis period. If there are any remaining unsatisfied requirements after executing the Apply Engineering Resource function, then these requirements can be printed.

2.6.3.5 Reports/Queries

The Standard Reports function recreates the same reports and Applixware graphics as from the Requirements Generation function and the Requirements Analysis function.

2.6.3.6 Support

2.6.3.6.1 Non-Unit Cargo

This function provides reports of the Class 4A material requirements needed to support the civil engineering activity in the area of operation. This information is also used to produce a LOGSAFE text file that can be passed to the LOGSAFE system.

2.6.3.6.2 Logistic Sustainability Analysis

This function displays LSA data graphs. LSA data can be generated for six subelements: airfields, seaports, POL storage/distribution, non-POL storage/distribution, troop support, and utilities. The user can display/print graphs producing the lowest percentage for each infrastructure subelement by time period, lowest level of sustainability for each infrastructure subelement, and percent available for each subelement.